

## CHAPTER 33

### **Pelvic or Genital Pain**

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Genital pain is one of the most personally distressing symptoms a patient can experience. Because the potential psychosocial implications inherent to certain etiologies of these symptoms, they may generate greater anxiety for patients than less morally charged symptoms such as crushing chest pain or severe dyspnea. For similar reasons, patients may be reluctant to seek timely care in spite of their high level of concern. A number of causes of genital and pelvic pain may be life threatening; delays in seeking care increase this risk. The family physician's approach to a patient presenting with genital or pelvic pain must be thorough yet sensitive, addressing the patient's concerns as well as those of the physician.

### **APPENDICITIS**

A presentation of pelvic pain may in fact represent abdominal pain. As such, intra-abdominal processes such as appendicitis must be considered. These are discussed in Chapter 1.

### **DYSURIA**

Dysuria, painful urination, is another symptom that may appear as a presenting complaint of genital pain. This symptom of urethritis and other urinary tract infections is covered in detail in Chapter 42.

### **ECTOPIC PREGNANCY**

Ectopic pregnancy is a medical—and possibly surgical—emergency. Untreated it can result in the rupture of the fallopian tube, which may be accompanied by significant bleeding. It is the leading cause of first-trimester maternal mortality. Because of these potentially dire consequences, it is imperative that the physician recognize and appropriately treat ectopic pregnancy.

Ectopic pregnancy refers to any pregnancy outside the uterine cavity. Implantation and subsequent development may occur in the fallopian tubes, within the cervix, or a variety of other intra-abdominal and pelvic locations. Risk factors identified for ectopic pregnancy include prior ectopic pregnancy, history of reproductive

system infection, history of infertility, induced ovulation, current IUD usage, prior cesarean section, multiple sexual partners, and cigarette smoking at the time of conception.

### Symptoms

- Typically appear 6 to 8 weeks after the last menstrual period ++++
- Abdominal and/or pelvic pain +++++
- Amenorrhea prior to onset of symptoms +++++
- Vaginal bleeding +++
- Shoulder pain (from blood irritating the diaphragm) +++
- An urge to defecate (from blood in the cul-de-sac) +++
- Lightheadedness or even shock (in case of rupture) ++
- More than half of patients are asymptomatic prior to rupture. +++

### Signs

- Variable, and may range from a normal examination to that of an acute abdomen to complete hemodynamic collapse
- Tachycardia ++
- Orthostatic hypotension ++
- Adnexal and cervical motion tenderness +++
- Uterine enlargement ++
- Adnexal mass ++
- Abdominal/pelvic pain +++++
- Fever +

### Workup

- Pregnancy test +++++
- Ultrasonography (generally transvaginal) +++++
- Quantitative chorionic gonadotropin ( $\beta$ -hCG) should be checked if ultrasound is equivocal. +++++
- Laparoscopy is generally not necessary for diagnostic purposes, but is essential for surgical treatment of tubal rupture and is the visualization modality of choice in unstable patients.
- Culdocentesis is of little value.
- MRI, although capable of identifying the location of the pregnancy, is not cost-effective.

### Comments and Treatment Considerations

Because of the variability in the clinical presentation of ectopic pregnancy, a high index of suspicion must be maintained. Ultrasonography (generally transvaginal) must be undertaken in all pregnant women with pelvic pain and vaginal bleeding to confirm intrauterine or extrauterine location of the gestational sac. Heterotopic pregnancies (i.e., one twin intrauterine, the other ectopic) are rare, but should be kept in mind if the patient clinically looks like an ectopic pregnancy but has an intrauterine gestational sac demonstrated. This is especially true of assisted reproduction patients.

A  $\beta$ -hCG value greater than 1500 IU/L in the presence of an adnexal mass and absence of an intrauterine gestational sac is generally diagnostic (specific cutoff is institution specific). If no adnexal mass or

intrauterine gestational sac is present, repeat the quantitative  $\beta$ -hCG and ultrasound in 2 days. If the  $\beta$ -hCG has risen or plateaued, but no intrauterine sac is yet visible, a presumptive diagnosis of ectopic pregnancy may be made and appropriate treatment instituted. If the  $\beta$ -hCG is declining, no intervention is necessary, but levels should be monitored until they return to negative. In cases in which the level is less than 1500 IU/L, it should be rechecked along with another ultrasound in 3 days. A normally rising  $\beta$ -hCG level should be followed by ultrasound until either an intrauterine or ectopic pregnancy is visualized, then treated accordingly. An abnormal increase (less than doubling in 3 days) coupled with an absence of an intrauterine gestational sac on ultrasound, indicates a viable intrauterine pregnancy is not present.

Methotrexate is the most widely used medication for nonsurgical treatment of ectopic pregnancy; other agents such as misoprostol and mifepristone have been investigated. Methotrexate is most successful in patients whose  $\beta$ -hCG is less than 5000 IU/L at the time of diagnosis, with an ectopic sac of less than 3 cm. There are both single- and multiple-dose regimens.

The single-dose methotrexate regimen is frequently used, though multi-dose regimens are available.

Surgical treatment of ectopic pregnancy has become less common with the advent of good diagnostic ultrasound and the therapeutic use of methotrexate. Still, there remains a vital role. Surgery is the preferred treatment for ruptured ectopic pregnancies and patients with hemodynamic instability. Indications vary and surgery is strongly considered in patients with anemia, pain longer than 24 hours,  $\beta$ -hCG greater than 5000 IU/L, or ectopic gestational sacs measuring more than 3.5 cm on ultrasound. Laparoscopic procedures are typically the first-line approach, though laparotomy may be needed for cases of extensive intraperitoneal bleeding, adhesions, and other special circumstances.

One final but important aspect of the treatment of ectopic pregnancy to remember is the use of RhoGAM to all Rh-negative women to prevent sensitization and related complications in future pregnancies.

The differential diagnosis for ectopic pregnancy includes conditions such as threatened abortion, ruptured corpus luteum cyst, urinary tract infection, appendicitis, diverticulitis, ovarian torsion, endometriosis, dysfunctional uterine bleeding, and pelvic inflammatory disease. Once ectopic pregnancy is excluded via a negative pregnancy test, these other potential etiologies for pelvic pain may be evaluated.

## ENDOMETRIOSIS

Endometriosis, the presence of endometrial glands and stroma outside the uterine cavity, is a common cause of pelvic pain. Half of adolescents, and up to one third of all women of reproductive age who undergo laparoscopy for pelvic pain are found to have endometriosis.

### Symptoms

- May range from asymptomatic to debilitating.
- Pelvic pain (worse during menses or at ovulation) +++
- Dysmenorrhea ++++
- Dyspareunia on deep penetration +++
- Cyclic bowel or bladder symptoms ++
- Dysfunctional uterine bleeding ++
- Infertility +++
- Chronic fatigue ++
- Depression ++

### Signs

- Often no physical findings on examination ++++
- The most common finding is tenderness when palpating the posterior fornix. +++
- Localized tenderness in the cul-de-sac or uterosacral ligaments ++
- Palpable, tender intrapelvic nodules ++
- Cervical motion tenderness ++
- Adnexal tenderness ++
- Adnexal masses ++
- Fixation of adnexa +
- Fixed, retroverted uterus +

### Workup

- Visualization of the implants via laparoscopy is the only way to make a definitive diagnosis. +++++ Other studies are undertaken to rule out other pathologies.
- Urinalysis and culture
- Cervical culture and wet mount
- CBC

### Comments and Treatment Considerations

Many cases of endometriosis may be managed expectantly, after ruling out other pathologies, using NSAIDs for symptomatic relief. Oral contraceptives have shown some symptomatic benefit, as well, and may slow the progression of the disease.

For those with more severe disease, a number of medical and surgical options exist. The medical approach essentially seeks to simulate the hormonal milieu of pregnancy or menopause, using progestins, androgens (i.e., danazol), GnRH analogs (e.g., leuprolide, nafarelin, and goserelin), and aromatase inhibitors (e.g., anastrozole, letrozole). Data for superiority of one regimen over another are lacking, but 80% to 90% of women will experience improvement—though not complete resolution—of their symptoms with medical management.

Surgery is reserved for the more severe cases. Modalities include both laparoscopy and laparotomy and may be definitive (removal of uterus and ovaries) or more conservative (focusing on destruction of the implants). Neurectomy in association with the conservative approach may be beneficial in select cases, but is not without adverse effects.

## EPIDIDYMITIS

As its name implies, epididymitis is an inflammatory process affecting the epididymis. Presentations may be acute, subacute, or chronic. Sexual activity, heavy physical exertion, and bicycle/motorcycle riding have all been found to increase the risk for developing this condition. Infectious epididymitis is most commonly caused by *Chlamydia* or gonococci in men younger than age 35; coliforms in those who are older. A wide variety of other organisms have also been implicated less frequently. Older men are at higher risk for developing an acute presentation, in conjunction with severe urinary symptoms and prostatitis; younger men generally have a more insidious onset.

### Symptoms

- Scrotal pain ++++ This may appear abruptly or insidiously.
- Urinary symptoms +++ (present in acute epididymitis; absent in subacute or chronic presentations)
- Rigorous chills (acute epididymitis) ++

### Signs

- Varying degrees of epididymal induration and tenderness on palpation ++++
- Severe swelling of affected side (acute epididymitis) ++
- Fever (acute epididymitis) ++
- Inflammatory nodule may be palpable +++
- Reactive hydrocele may be present +++ (common in acute epididymitis, less frequent in subacute or chronic presentations)

### Workup

- Ultrasound generally reveals no anomalies.
- Urinalysis is generally negative; culture may be helpful. ++
- Blood count and cultures may be of value in patients with systemic signs (acute epididymitis). ++

### Comments and Treatment Considerations

In making the diagnosis of epididymitis, it is critical to differentiate it from torsion of the testes or the testicular appendix. These conditions are presented later in this chapter. Other conditions that may appear clinically similar to epididymitis include orchitis, which is usually viral (though *Brucella* may be a bacterial cause), in which the tenderness tends to be more diffuse; trauma, which can generally be derived from the history; and systemic conditions, like Henoch-Schönlein purpura, which may include scrotal pain as a manifestation.

Treatment varies with severity and suspected etiology. Septic presentations should be treated as inpatients with IV antibiotics and fluids. Less ill individuals may be treated as outpatients with oral antimicrobials. Generally, men younger than 35 years of age should be treated for gonorrhea and chlamydia using agents such as ceftriaxone 250 mg IM once plus azithromycin 1g PO once. Alternatively, a fluoroquinolone (e.g., levofloxacin 500 mg PO daily for 10 days)

and doxycycline (100 mg PO twice a day for 10 days) may be used. For those older than 35 years, enteric bacteria are more likely and a 21-day course of a fluoroquinolone is recommended.

Noninfectious epididymitis is attributed to urine reflux and is associated with prolonged sitting (travel, sedentary jobs), cycling, and vigorous exercises such as lifting and others that involve Valsalva-type straining. Noninfectious epididymitis may also result from certain medications such as amiodarone and autoimmune disease. Antibiotics are not indicated in these cases.

Regardless of the etiology, scrotal elevation, cold compresses, and NSAIDs may provide symptomatic relief.

## INGUINAL HERNIA

Hernias are the result of weakness or disruption of the fibrous tissues and the resultant protrusion of the internal structures through the defect. Groin hernias can be either inguinal or femoral, and inguinal hernias may be either direct or indirect. Ninety-six percent of groin hernias are inguinal, with a 9:1 male preponderance. Conversely, the less common femoral hernias are four times more common in women than men, and 40% present as strangulated. Hernias move from being merely inconveniences (albeit significant ones) to potentially life threatening when they become strangulated.

### Symptoms

- May be asymptomatic +++
- “Heaviness” or dull pain in low abdomen or scrotum when straining (Valsalva maneuver), lifting, or standing for a prolonged time. ++ The discomfort may resolve when the patient stops straining or lies down
- Groin mass +++
- May have severe focal progressing to diffuse pain, nausea and vomiting, diarrhea, and even fever if strangulated ++

### Signs

- Palpable (or even visible) mass in inguinal canal or femoral triangle, ++++ most easily detected with the patient in an upright posture. It may extend into the scrotum.
- May be reducible if not incarcerated +++
- Exquisite local pain (if strangulated ++++)
- Peritoneal signs (if strangulated ++++)

### Workup

- Diagnosis is based on clinical examination and history in the majority of cases.
- Occasionally imaging may be used for equivocal presentations. MRI, ultrasound, and herniography have demonstrated efficacy.
- If strangulation is suspected, preoperative laboratory work should be initiated.
- Remember, hernias may occur bilaterally: examine both the presenting and the contralateral sides!

### Comments and Treatment Considerations

Other conditions that may present in a fashion similar to hernia include muscle strains, epididymitis, hydrocele, spermatocele, varicocele, testicular or appendiceal testis torsion, epididymal cysts, or neoplasms. If possible, these should be ruled out prior to surgery.

Definitive treatment of hernia is surgery. However, watchful waiting is reasonable in minimally symptomatic patients. In deciding whether to manage surgically, bear in mind that the risk of strangulation is greatest shortly after the hernia manifests itself, and diminishes with time. Risk is also lower for larger hernias than for small ones. Surgical repair of hernia may use either open or laparoscopic approaches. Though there are strong proponents of each technique, negligible differences in outcomes have been demonstrated.

Historically, trusses have been used as an alternative to surgery. However, there is no evidence of benefit, and there is the potential for the truss to compress the hernia, producing a strangulation-type injury. Truss use should generally be discouraged.

## SALPINGITIS AND TUBO-OVARIAN ABSCESS

These conditions usually arise as complicated manifestations of pelvic inflammatory disease (PID), which may less commonly also include endometritis, oophoritis, peritonitis, and perihepatitis (Fitz-Hugh–Curtis syndrome). The progression of PID to salpingitis and tubo-ovarian abscess (TOA) represents a continuum rather than discrete, quantal steps in the disease process. Though PID is the primary antecedent, TOA may occasionally be seen as a complication of surgery, in association with malignancy, or from the spread of other infectious processes such as appendicitis and diverticulitis.

### Symptoms

- Low abdominal and pelvic pain, often beginning around the time of menses (the most reliable symptom) ++++
- Fever and chills (not always present) +++
- Vaginal discharge (not always present) ++

### Signs

- Palpable, tender adnexal mass (in 90% of TOA [[Landers and Sweet, 1985](#)]) ++++
- Peritoneal signs such as rebound tenderness +++
- Fever +++
- Toxic appearance +++
- Cervical motion tenderness +++
- Exquisite adnexal tenderness, ++++ which may preclude a thorough examination
- Purulent discharge from the cervix ++
- Decreased bowel sounds and other signs of ileus ++

### Workup

- Thorough history, including sexual history
- Complete examination, including pelvic examination

- Ultrasound is the modality of choice to confirm clinical suspicion of TOA.
- CBC (but leukocytosis is present in only 60% to 80% of TOA) ++++
- hCG (to rule out ectopic pregnancy, an important consideration in the differential diagnosis)

### Comments and Treatment Considerations

The differential diagnosis for TOA is broad, including ectopic pregnancy, torsion of the ovaries, other abdominopelvic abscesses, and both benign and malignant neoplasms.

One important distinction to make is that of the tubo-ovarian complex. Another complication of PID, this painful adnexal mass develops as the result of adherence of the inflamed pelvic tissues to one another. It appears clinically very similar to TOA, but has the important difference in that it does not consist of the devitalized tissue and pus collection present in the latter and is thus conducive to medical rather than surgical treatment. Ultrasound is quite useful in differentiating these two entities and directing the physician to institute the appropriate therapeutic intervention.

Treatment of TOA is controversial. Historically, TOA, as virtually every other abscess, was considered a surgical disease. Certainly, the rupture of a TOA may be a life-threatening event. A trial of broad-spectrum antibiotics, targeting the anaerobe-predominant polymicrobial mix present in PID and TOA, is advocated in most cases and supported by reasonable evidence. The online reference, *UpToDate*, takes the middle road and suggests that individuals not responding to medical management within 4 days require surgical drainage.

Whether medical or surgical modalities are used, individuals with TOA should be treated as inpatients. If the surgical approach is chosen, drainage may be accomplished via the transvaginal, transgluteal, laparoscopic, or surgical routes. Medically, two regimens are suggested: (1) cefoxitin 2 g IV every 6 hours (or cefotetan 2 g IV every 12 hours) plus doxycycline 100 mg PO every 12 hours, for at least 48 hours, followed by oral doxycycline for 2 weeks after discharge; or (2) clindamycin 900 mg IV and gentamicin 1.5 mg/kg PO every 8 hours (following a 2 mg/kg bolus of the gentamicin) with discharge medications of either oral doxycycline (100 mg daily) or clindamycin (450 mg five times daily) for 2 weeks.

## TESTICULAR TORSION

Affecting up to two in five patients presenting with acute scrotal pain, torsion of the testis is a surgical emergency. Untreated, it can result in infarction and loss of the testis. Neonates and adolescent boys are most commonly affected, but it can occur at any age.

### Symptoms

- Sudden onset of scrotal pain developing several hours after vigorous exercise or minor testicular trauma ++++
- May present as awakening with scrotal pain +++
- Nausea and vomiting +++



## Signs

- Asymmetric, high-riding testis on the affected side with a “bell-clapper” deformity +++
- Testicular swelling is typical early; +++ later there may be a reactive hydrocele.
- Erythema of the scrotum +++
- Exquisite tenderness (may be distinguishable from the point tenderness of epididymitis) +++++
- Absent cremasteric reflex +++++
- Prehn's sign (worsening pain with elevation of the scrotum) may be present but cannot distinguish between torsion and epididymitis. +++

## Workup

- Usually the diagnosis can be made clinically +++++; based on this, emergent surgery is arranged.
- Color Doppler ultrasonography is useful if clinical examination is equivocal. +++++
- If color Doppler is unavailable, use of a Doppler stethoscope may demonstrate lack of arterial pulses in the affected hemiscrotum. +++++

## Comments and Treatment Considerations

Surgery is the definitive treatment, and should be undertaken once the diagnosis is made. The procedure consists of detorsion and bilateral fixation of the testes. Timing is critical because the duration of vascular compromise determines the clinical outcome. If more than 12 hours have elapsed, damage is considered permanent and orchiectomy may be required. Because no test is definitive, consideration of urologic consultation/surgery should be given for suspect cases.

If surgery is not available in a timely fashion, manual detorsion may be attempted by rotating the affected testis outward toward the thigh. Success is indicated by resolution of both the pain and the bell-clapper deformity. In these cases, Doppler pulses will be detectable in the scrotum, where they were absent prior to detorsion. Manual detorsion attempts should never delay surgery; even when successful, surgical orchiopexy must be performed to prevent recurrence.

The differential for testicular torsion includes epididymitis (managed medically, as noted previously), traumatic rupture (which requires surgical repair), and torsion of the testicular appendix, the last of which can present in a fashion very similar to that of testicular torsion and deserves a brief review.

The torsion of this müllerian duct remnant has a more gradual onset of pain than torsion of the testis. It may be accompanied by a reactive hydrocele, but the bell-clapper deformity is absent. One important distinguishing physical finding is an intact cremasteric reflex, which is typically absent in testicular torsion. A “blue dot” sign may be observed on the anterosuperior scrotal wall. On palpation, pain may be localized to this same region, with the epididymis

and the testis itself being nontender. Diagnosis of this disorder is primarily clinical, though ultrasonography is a useful confirmatory test. Treatment of appendiceal torsion is medical via rest, ice, and antiinflammatory drugs. Surgical management may speed the resolution of the symptoms, but is not essential as it is in the case of testicular torsion.

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